

WHAT IS CLAIMED IS:

1. A fulfillment management system, comprising:  
a database operable to store product availability information associated with at least one product; and  
5 one or more processors collectively operable to:  
receive at least one component available-to-promise (ATP) request, each component ATP request corresponding to an ATP request line-item for a desired product;  
retrieve from the database at least a portion of the product availability  
10 information associated with the desired product for each component ATP request;  
determine an ATP response for each component ATP request using the retrieved product availability information;  
generate a component quotation for each component ATP request according to the corresponding ATP response; and  
15 communicate the component quotation for consolidation with other component quotations.
2. The fulfillment management system of Claim 1, wherein the one or more processors are further collectively operable to:  
20 receive at least one component quotation confirmation, each component quotation confirmation corresponding to a particular quotation line-item accepted at a client;  
determine a promise response for each component quotation confirmation using at least a portion of the product availability information in the database;  
25 generate a component promise for each component quotation confirmation according to the corresponding promise response, the component promise representing a commitment of product availability for the corresponding accepted product; and  
communicate the component promise for consolidation with other component  
30 promises.

3. The fulfillment management system of Claim 2, wherein the one or more processors are further collectively operable to:

receive a component request cancellation associated with a component ATP request or a component promise;

5 update the product availability information associated with the desired product in the database; and

generate a component cancellation confirmation for communication.

10 4. The fulfillment management system of Claim 2, wherein the one or more processors are further collectively operable to:

receive a component acceptance corresponding to a particular promise line-item accepted at the client;

record the component acceptance in the database; and

15 generate a component acceptance confirmation for communication.

5. The fulfillment management system of Claim 2, wherein the one or more processors are further collectively operable to:

identify a planning change that affects a component promise;

generate a planning change notification for communication;

20 receive at least one revised component ATP request; and

process the revised component ATP request to generate one or more revised component quotations.

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6. The fulfillment management system of Claim 1, wherein the one or more processors are collectively operable to determine the ATP response for one of the component ATP requests by:

5 searching the retrieved product availability information, in reverse chronological order starting at a requested ship date, for a requested quantity of the desired product;

determining whether the total requested quantity is available between the requested ship date and a lower bound of a date range;

10 searching the retrieved product availability information, in chronological order starting at the requested ship date, for the remaining requested quantity when the total requested quantity is not available between the requested ship date and the lower bound of the date range; and

determining whether the total requested quantity is available between the lower bound and an upper bound of the date range. -

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7. The fulfillment management system of Claim 1, wherein:

the component ATP requests correspond to individual items;

20 the one or more processors are collectively operable to generate component quotations that include information and rules regarding how the component quotations may be mutated; and

the one or more processors are collectively operable to generate component promises that include information and rules regarding how the component promises may be mutated.

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8. The fulfillment management system of Claim 1, wherein the one or more processors are further collectively operable to:

receive a sequence of component ATP requests, one or more first component ATP requests in the sequence targeted to the fulfillment management system;

5 process the first component ATP requests targeted for the fulfillment management system to generate one or more resulting component quotations; and

communicate the resulting component quotations, along with remaining component ATP requests in the sequence, to a second fulfillment management system targeted by one or more second component ATP requests in the sequence.

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9. The fulfillment management system of Claim 1, wherein the one or more processors are collectively operable to:

support a seller hierarchy also supported by a fulfillment server;

support a subset of products supported by the fulfillment server; and

15 generate component quotations or component promises on a per product basis based upon allocations throughout the seller hierarchy for the subset of products.

10. The fulfillment management system of Claim 1, wherein the one or more processors are collectively operable to:

20 support a subset of products in a hierarchy of related products supported by a fulfillment server; and

generate component quotations or component promises based upon allocations for the subset of products throughout the hierarchy.

25 11. The fulfillment management system of Claim 10, wherein the one or more processors are further collectively operable to generate an availability of generics of a product by communicating component ATP requests to a second fulfillment management system that corresponds to the generic products.

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12. The fulfillment management system of Claim 1, wherein:  
the fulfillment management system corresponds to a seller within a seller  
hierarchy supported by a fulfillment server; and

the one or more processors are further collectively operable to:  
5 hold allocations of supply for the corresponding seller;  
generate all component quotations or component promises possible  
with the allocations; and  
communicate the component quotations or component promises for  
combination, for each product, as if the ATP request had been quoted or promised by  
10 a single system having all the allocations.

13. The fulfillment management system of Claim 12, wherein the one or  
more processors are further collectively operable to generate an availability of a  
corresponding parent seller by communicating component ATP requests to a second  
15 fulfillment management system corresponding to the parent seller.

14. The fulfillment management system of Claim 1, wherein the one or  
more processors are collectively operable to accept component ATP requests from  
multiple fulfillment servers and communicate component quotations or component  
20 promises to multiple fulfillment servers.

15. The fulfillment management system of Claim 1, wherein the one or  
more processors are collectively operable to support a subset of a product hierarchy  
and generate component quotations or component promises based on allocations to  
25 products in the hierarchy.

16. The fulfillment management system of Claim 1, wherein the product  
availability information comprises:  
a list of at least one product; and  
30 a supply vector identifying when one or more quantities of the product have or  
will become available.

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17. The fulfillment management system of Claim 1, wherein the database is also operable to store:

one or more accepted component promises;

5 one or more commit transactions associated with each accepted component promise; and

one or more supply transactions associated with at least one product.

18. The fulfillment management system of Claim 17, wherein the supply transactions represent at least one of an addition, a modification, and a removal of  
10 availability of the product.

19. The fulfillment management system of Claim 1, wherein the one or more processors are collectively operable to receive at least one component ATP request through a web user interface.  
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20. The fulfillment management system of Claim 19, wherein the one or more processors are collectively operable to receive at least one component ATP request using Hypertext Transfer Protocol (HTTP).

20 21. The fulfillment management system of Claim 1, wherein the fulfillment management system operates in an electronic marketplace.

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22. A computer-implemented method for managing available-to-promise (ATP) data, comprising:

receiving at least one component ATP request, each component ATP request corresponding to an ATP request line-item for a desired product;

5 retrieving from a local database at least a portion of product availability information associated with the desired product for each component ATP request;

determining an ATP response for each component ATP request using the retrieved product availability information;

10 generating a component quotation for each component ATP request according to the corresponding ATP response; and

communicating the component quotation for consolidation with other component quotations.

23. The method of Claim 22, further comprising:

15 receiving at least one component quotation confirmation, each component quotation confirmation corresponding to a particular quotation line-item accepted at a client;

determining a promise response for each component quotation confirmation using at least a portion of the product availability information in the database;

20 generating a component promise for each component quotation confirmation according to the corresponding promise response, the component promise representing a commitment of product availability for the corresponding accepted product; and

25 communicating the component promise for consolidation with other component promises.

24. The method of Claim 23, further comprising:

receiving a component request cancellation associated with a component ATP request or a component promise;

30 updating the product availability information associated with the desired product in the database; and

generating a component cancellation confirmation for communication.

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29. The method of Claim 22, further comprising:

receiving a sequence of component ATP requests, one or more first component ATP requests in the sequence targeted to a first fulfillment management system;

5 processing the first component ATP requests targeted for the first fulfillment management system to generate one or more resulting component quotations; and

communicating the resulting component quotations, along with remaining component ATP requests in the sequence, to a second fulfillment management system targeted by one or more second component ATP requests in the sequence.

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30. The method of Claim 22, further comprising generating component quotations or component promises on a per product basis based upon allocations throughout a seller hierarchy for a subset of products, the seller hierarchy and the subset of products supported by a fulfillment server.

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31. The method of Claim 22, further comprising generating component quotations or component promises based upon allocations for a subset of products throughout a hierarchy of related products, the subset of products in the hierarchy of related products supported by a fulfillment server.

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32. The method of Claim 22, further comprising generating an availability of generics of a product by communicating component ATP requests to a fulfillment management system that corresponds to the generic products.

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33. The method of Claim 22, further comprising:

holding allocations of supply for a seller within a seller hierarchy that is supported by a fulfillment server;

generating all component quotations or component promises possible with the allocations; and

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communicating the component quotations or component promises for combination, for each product, as if the ATP request had been quoted or promised by a single system having all the allocations.

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34. The method of Claim 33, further comprising generating an availability of a corresponding parent seller by communicating component ATP requests to a fulfillment management system corresponding to the parent seller.

5 35. The method of Claim 22, wherein:  
receiving at least one component ATP request comprises receiving component ATP requests from multiple fulfillment servers; and  
communicating the component quotation comprises communicating component quotations to multiple fulfillment servers.

10 36. The method of Claim 22, wherein generating the component quotations for the component ATP requests comprises generating the component quotations based on allocations to products in a product hierarchy.

15 37. The method of Claim 22, wherein receiving at least one component ATP request comprises receiving at least one component ATP request through a web user interface.

20 38. The method of Claim 37, receiving at least one component ATP request comprises receiving at least one component ATP request using Hypertext Transfer Protocol (HTTP).

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39. Software for managing available-to-promise (ATP) data in a distributed supply chain planning environment, the software embodied in at least one computer-readable medium and when executed by one or more processors operable to:

5 receive at least one component ATP request, each component ATP request corresponding to an ATP request line-item for a desired product;

retrieve from a database at least a portion of product availability information associated with the desired product for each component ATP request;

10 determine an ATP response for each component ATP request using the retrieved product availability information;

generate a component quotation for each component ATP request according to the corresponding ATP response; and

communicate the component quotation for consolidation with other component quotations.

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means for storing product availability information associated with at least one product;

means for retrieving from the database at least a portion of the product availability information associated with the desired product for each component ATP request;

means for generating a component quotation for each component ATP request according to the corresponding ATP response; and

means for communicating the component quotation for consolidation with  
15 other component quotations.

41. A fulfillment management system for use in an electronic marketplace, comprising:

a database operable to store:

5 a supply vector identifying when one or more quantities of at least one product have or will become available;

at least one accepted component promise;

at least one commit transaction associated with each accepted component promise; and

10 at least one supply transaction associated with a product; and one or more processors collectively operable to:

receive at least one component available-to-promise (ATP) request using Hypertext Transfer Protocol (HTTP), each component ATP request corresponding to an ATP request line-item for a desired product;

15 retrieve from the database at least a portion of the supply vector associated with the desired product for each component ATP request;

search the retrieved information, in reverse chronological order starting at a requested ship date, for a requested quantity of the desired product;

determine whether the total requested quantity is available between the requested ship date and a lower bound of a date range;

20 search the retrieved information, in chronological order starting at the requested ship date, for the remaining requested quantity when the total requested quantity is not available;

determine whether the total requested quantity is available between the lower bound and an upper bound of the date range;

25 generate a component quotation for each component ATP request based on the search of the retrieved information; and

communicate the component quotation for consolidation with other component quotations.

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